

REMARKS

Claims 1-3 and 5-28 are pending in the present Application, with claims 13-28 being withdrawn. No claims have been canceled, and claim 1 has been amended by this amendment, leaving Claims 1-3 and 5-21 for consideration upon entry of the present Amendment.

Entry of this amendment is requested, as it places the claims in condition for allowance. Claim 1 has been amended to describe the composition of the plurality of ribs as being a thermoplastic polymer and an electrically conductive filler). Support for this amendment can at least be found in the specification as originally filed in paragraphs [0012] and [0016], wherein a profile die is used to simultaneously extrude the sheets and the ribs. No new matter has been introduced by this amendment.

Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 102(e)

Claims 1 and 7 stand rejected under 35 U.S.C. § 102(e), as allegedly anticipated by U.S. Patent No. 6,741,221 ("Aisenbrey"). Applicants respectfully traverse this rejection.

Aisenbrey discloses a multiwall sheet comprising a first sheet 40 and second sheet 42 which are connected by insulating standoffs 60 (Figures 4A and 4B, column 3, line 21 to column 5, line 12). The sheets contain a metallic, electrically conductive filler (Figures 4A and 4B along with column 3, line 21 through column 5, line 12).

Claim 1 has been amended to recite that the ribs comprise a thermoplastic polymer and an electrically conductive filler. The ribs as presently claimed are therefore not the same as the insulating standoffs 60 of Aisenbrey. Note that the "conductive loaded resin-based materials" of Aisenbrey are disclosed for use only in connection with the antennas, not the standoffs. Nowhere does Aisenbrey teach the composition of the insulating standoffs, but one skilled in the art would appreciate that an insulating standoff would not comprise a thermoplastic polymer and an electrically conductive filler as presently claimed.

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Variant Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987). Since Aisenbrey fails to

disclose all elements of the instant claim 1, reconsideration and withdrawal of this rejection is respectfully requested.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 2, 3, 5, 6, and 8-12 are rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Aisenbrey. The Examiner states that Aisenbrey teaches the invention as recited except for the specific polymers of claims 1-3, 5 and 6, nanotubes of claim 8, properties of claims 9 and 10, and additives of claim 11. The Examiner further states that it would have been obvious to use the specific polymers claimed, motivated by the fact that Aisenbrey teaches to use any GE PLASTICS polymers. As discussed above, there is no teaching or suggestion to use conductive materials in insulating ribs. In fact, such modification would render Aisenbrey non-operative for its intended purpose, since the standoffs would no longer be insulating.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996). Aisenbrey does not teach all elements of the claims (ribs comprising polymer and an electrically conductive filler), does not suggest to modify the ribs to contain a conductive filler, and such modification would render the invention non-operative. Applicants therefore respectfully request the Examiner reconsider and withdraw this rejection.

Claims 1-3 and 5-12 further stand rejected under U.S.C. 103(a) as allegedly unpatentable over U.S. Patent No. 4,773,534 ("DeHeras") in view of U.S. Patent No. 5,360,658 ("Schmitz").

DeHeras discloses a carrier for printed circuit boards, the carrier having a structural outer layer made from conductive polypropylene. The outer layer has an outer surface held to an inner

surface by a plurality of integral I-beam members. (Col. 2, lines 24-31) DeHeras fails to disclose that an electrically conductive filler is used to impart conductivity, or any other polymers for use in the carrier.

Schmitz discloses extruded polycarbonate sheets produced from thermoplastic polycarbonate, polyalkylene terephthalates, and carbon black. (Abstract) Schmitz does not disclose use of the extruded polycarbonate sheet to make multiwall structures such as those described in DeHeras.

The Examiner states that it would be obvious for DeHeras to include carbon black (or any other conductive filler) in the sheets, as taught by Schmitz in order to impart conductivity thereto, motivated by the fact that DeHeras teaches that the polymer is conductive. (Office Action, p. 4) The Examiner also states that the specific polymers per claims 1-3, 5, and 6 are obvious to one of ordinary skill motivated by the fact that DeHeras teaches to use polymer resins and substituting one polymer for another would be obvious to a skilled artisan. (Office Action, p. 4) Applicants respectfully disagree, on the basis that one of ordinary skill in the art would not substitute the polypropylene of DeHeras with the polycarbonate of Schmitz. Neither reference teaches that a carrier fabricated from any alternate fabrication materials would meet the 30-inch drop test requirement per Federal Test Standard 101C, Method 5007.1 as disclosed in DeHeras. (Col. 3, lines 16-18) Schmitz discloses surface resistance of its extruded polycarbonate sheets of 5×10^5 ohms and an elongation at break of greater than or equal to 20%. (Col. 2, lines 18-19). However, Schmitz fails to provide evidence to suggest the molding composition possesses properties to encourage a reasonable expectation that combining the polycarbonate sheets of Schmitz with the invention of DeHeras would result in a circuit board carrier that meets performance requirements such as the 30" drop test. Thus, DeHeras neither provides a suggestion or incentive to combine references with the composition of Schmitz, nor provides a reasonable expectation of success in making the combination. Reconsideration and withdrawal of the rejections over DeHeras in view of Schmitz are therefore respectfully requested. .

Claims 1-3 and 5-12 further stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 6,680,350 ("Dobler") in view of Schmitz. Dobler discloses molding compositions comprising transparent thermoplastic polymers and near IR absorbers for

glazing materials. The compositions can be used to form twin or multiwall sheets. Dobler does not teach use of electrically conductive fillers, but does disclose that it is known to include fillers in the composition. The Examiner states that it would have been obvious to include carbon black (or any other electrically conductive filler) in the composition of Dobler, as taught by Schmitz to impart conductivity thereto, motivated by the fact that Dobler teaches that fillers can be included in the composition. (Office Action, p. 5) Applicants respectfully disagree with this rejection.

Dobler, while disclosing multiwall sheets generally, provides no other disclosure relating to multiwall sheets, and thus fails to disclose, either generally or specifically, any structural features of the multiwall sheets. (Col. 10, lines 15-16) Dobler thus fails to specifically disclose the plurality of ribs of the instant claims as a structural element of the multiwall sheets. Schmitz discloses conductive polycarbonate sheets, but fails to disclose or teach multiwall sheets, and further does not disclose the plurality of ribs as claimed in amended instant Claim 1. Thus, the combination of Dobler with Schmitz fails to disclose or teach all elements of the instant claims.

In addition, and as the Examiner has noted, Dobler does not disclose the use of conductive filler as an additive, but instead discloses near-infrared glazing compounds. (Col. 8, lines 3-5). Dobler discloses that the molding composition have the “advantageous properties of the unmodified transparent thermoplastic polymer,” including “high lightfastness, low cloud, and good mechanical properties.” (Emphasis added; Col. 8, lines 11-14) Incorporation of carbon black as suggested by the Examiner would not provide the transparent polymer of Dobler. This is particularly true in view of the disclosure of Dobler, which states that additives, such as fillers as noted by the Examiner, “can be incorporated into the molding compositions according to the invention,” and at levels of “up to 5 wt% each”. (Col. 8, lines 27-30 and 37-44). Incorporation of higher amounts of additives, particularly carbon black, is known to compromise the transparency of polymeric compositions. Schmitz, in contrast, discloses polycarbonate sheets with “a minimum carbon black content of 13%” to maintain the desired elongation at break properties (emphasis added). (Col. 2, lines 38-40). Thus, Schmitz teaches the use of an amount of carbon black that is more than a factor of two in excess of the maximum amount of filler taught in Dobler. The combination of the carbon black of Schmitz would therefore undesirably affect the properties of the unmodified transparent polymer of Dobler. The combination of Dobler with Schmitz therefore fails to provide a reasonable expectation for success for the

combination. Further, the mismatch in the amount of filler in Dobler and carbon black in Schmitz does not provide either a suggestion or incentive for combining these references. Therefore, for at least the above reasons, the combination of Dobler with Schmitz does not disclose, teach, or suggest the invention of instant Claims 1-12, does not provide a suggestion or incentive for combining these references, and fails to provide a reasonable expectation for success for the combination of references. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and withdrawal of the objection(s) and rejection(s) and allowance of the case are respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 50-3621.

Respectfully submitted,

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